

Amendments to the Claims:

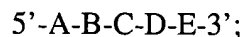
Status and amended claims begins on page 3.

Remarks:

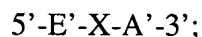
Remarks begin on page 7.

Status and Amended Claims:

1. (currently amended) A composition for determining the presence or absence of a target molecule comprising a first ribonucleic acid (RNA) molecule, said first RNA molecule binds a target molecule and has the following formula:



wherein A is a section of the RNA molecule having 10-100,000 nucleotides which section is, with another RNA sequence, E, replicated by an RNA replicase, the letter "B" denotes a section of the RNA molecule having approximately 1 to 50000 nucleotides which section, with another sequence D, binds the target molecule under binding conditions, wherein said target is a small or large organic molecule such as a peptide, protein, and derivatives thereof, the letter "C" denotes a section of the RNA molecule having approximately 1 to 10000 nucleotides which section is capable preventing the replication of the first molecule by the RNA replicase, the letter "D" denotes a section of the RNA molecule having approximately 1 to 50000 nucleotides which section, with another sequence B, binds the target molecule under binding conditions, the sections B and D, in combination, comprise in total at least 10 nucleotides, the first RNA molecule, with sections B and D bound to target, is acted upon by the RNA replicase to form a second RNA molecule, said second RNA molecule has the following formula:



wherein, E' is the complement to E, and A' is the complement to A, and the letter "X" denotes the complement of parts of the sections B and D which may be replicated, or the letter denotes the direct bond between sections E' and A', and said second RNA molecule is replicated by the RNA replicase under replicating conditions.

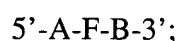
2. (original) The composition of claim 1 wherein the sections represented by the letters "A" and "E" are selected from the group of sequences consisting of MDV-I RNA, Q-beta RNA microvariant RNA, nanovariant RNA, midvariant RNA, RQ-135 and modifications of such sequences which maintain the ability of the sequences to be replicated by Q-beta replicase.

3. (original) The composition of claim 1 wherein the RNA replicase is Q-beta replicase.

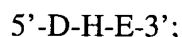
4. (original) The composition of claim 1 wherein the sections B and D bind to target through non-nucleic acid base pairing interactions.

5. (original) The composition of claim 1 wherein the sections B and D each have a hybridization sequence of 1-100 nucleotides, said hybridization sequence of section B is adjacent to the section A and forms a hybridization product with a said hybridization sequence of section D, and said hybridization sequence of section D is adjacent section E.

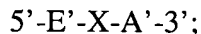
6. (original) The composition of claim 1 wherein the section C has 1-10,000 nucleotides which sequences define a stop sequence for the RNA replicase.
7. (original) The composition of claim 1 wherein the sections A and E comprise at least one sequence that hybridizes to a third nucleic acid to form a hybridization product which hybridization product can be detected.
8. (currently amended) A composition for determining the presence or absence of a target molecule comprising paired RNA molecules having a first RNA molecule and a second RNA molecule, said first RNA molecule binds a target molecule and has the following formula:



and, said second RNA binds the target and has the following formula:



wherein A is a section of the RNA molecule having 10-100,000 nucleotides which section is, with another RNA sequence, E, replicated by an RNA replicase, the letter "B" denotes a section of the RNA molecule having approximately 1 to 50000 nucleotides which section, with another sequence D, binds the target molecule under binding conditions, wherein said target is a small or large organic molecule such as a peptide, protein, and derivatives thereof, the letter "D" denotes a section of the RNA molecule having approximately 1 to 50000 nucleotides which section, with another sequence B, binds the target molecule under binding conditions, wherein said target is a small or large organic molecule such as a peptide, protein, and derivatives thereof, the sections B and D, in combination, comprise in total at least 10 nucleotides, the letter "F" denotes a section of the RNA molecule having has a hybridization sequence of 1-10,000 nucleotides which form a hybridization product with a section H, the letter "H" denotes a section of the RNA molecule having has a hybridization sequence of 1-10,000 nucleotides which form a hybridization product with a section F, in the absence of target, the hybridization sequences do not form a stable hybridization product, in the presence of the target, and the formation of a complex between sections B and D with the target, a hybridization product is formed that allows the RNA replicase to replicate sections A and E to form a third RNA molecule, said third RNA molecule has the following formula:

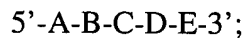


wherein E' is the complement to E and A' is the complement to A, the letter "X" denotes the complement of parts of the sections F and H which may be replicated, or the letter denotes the direct bond between sections E' and A' and said third RNA molecule is replicated by the RNA replicase under replicating conditions.

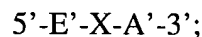
9. (withdrawn)

10. (canceled)

11. A kit for determining the presence or absence of a target molecule, said kit comprises a one or more reagents comprising a first RNA molecule for use with an RNA replicase, said first RNA molecule has the formula:

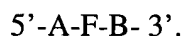


wherein A is a section of the RNA molecule having 10-100,000 nucleotides which section is, with another RNA sequence, E, replicated by an RNA replicase, the letter "B" denotes a section of the RNA molecule having approximately 1 to 50000 nucleotides which section, with another sequence D, binds the target molecule under binding conditions, wherein said target is a small or large organic molecule such as a peptide, protein, and derivatives thereof, the letter "C" denotes a section of the RNA molecule having approximately 1 to 10000 nucleotides which section is capable preventing the replication of the first molecule by the RNA replicase, the letter "D" denotes a section of the RNA molecule having approximately 1 to 50000 nucleotides which section, with another sequence B, binds the target molecule under binding conditions, the sections B and D, in combination, comprise in total at least 10 nucleotides, the first RNA molecule, with sections B and D bound to target, is acted upon by the RNA replicase to form a second RNA molecule, said second RNA molecule has the following formula:

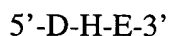


wherein, E' is the complement to E, and A' is the complement to A, and the letter "X" denotes the complement of parts of the sections B and D which may be replicated, or the letter denotes the direct bond between sections E' and A', and said second RNA molecule is replicated by the RNA replicase under replicating conditions, said kit for determining the presence or absence of said target molecule.

12. A kit for determining the presence or absence of a target molecule comprising paired RNA molecules said paired RNA molecules comprising a first RNA molecule and a second RNA molecule, said first RNA molecule has the formula:

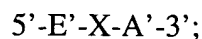


The second RNA molecule has the formula:



wherein A is a section of the RNA molecule having 10-100,000 nucleotides which section is, with another RNA sequence, E, replicated by an RNA replicase, the letter "B" denotes a section of the RNA molecule having approximately 1 to 50000 nucleotides

which section, with another sequence D, binds the target molecule under binding conditions, wherein said target is a small or large organic molecule such as a peptide, protein, and derivatives thereof, the letter "D" denotes a section of the RNA molecule having approximately 1 to 50000 nucleotides which section, with another sequence B, binds the target molecule under binding conditions, wherein said target is a small or large organic molecule such as a peptide, protein, and derivatives thereof, the sections B and D, in combination, comprise in total at least 10 nucleotides, the letter "F" denotes a section of the RNA molecule having has a hybridization sequence of 1-10,000 nucleotides which form a hybridization product with a section H, the letter "H" denotes a section of the RNA molecule having has a hybridization sequence of 1-10,000 nucleotides which form a hybridization product with a section F, in the absence of target, the hybridization sequences do not form a stable hybridization product, in the presence of the target, and the formation of a complex between sections B and D with the target, a hybridization product is formed that allows the RNA replicase to replicate sections A and E to form a third RNA molecule, said third RNA molecule has the following formula:



wherein E' is the complement to E and A' is the complement to A, the letter "X" denotes the complement of parts of the sections F and H which may be replicated, or the letter denotes the direct bond between sections E' and A' and said third RNA molecule is replicated by the RNA replicase under replicating conditions.

13. (withdrawn)